Andrea Lunaro Control System Engineer

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Key Skills

Programming skills: Matlab/Simulink, C/C++, Python, React, React Native, JavaScript, HTML5, CSS
Engineering tools: Fusion360, Solidworks, NI LabVIEW, KiCAD, Ansys Fluent
Project methodologies: Model based design, Model-driven engineering
Requirements management tools: IBM Doors, IBM Synergy

Overall description of my work

I'm a Control system Engineer who has major experience in control logics development for aerospace applications. I use Matlab and Simulink daily as I work mainly with simulated mathematical models. My work involves every part of the control systems design experience following the model-based approach.

As part of the control team, my other tasks are to support engine testing activities and analysis of data obtained from flight missions.

Most Recent Role

GE Catalyst (ATP) / AvioAero (On behalf of Experis Srl) 06-2021 / present

Role: *Control System Engineer*
General Context
The GE Catalyst is a turboprop engine developed to be more efficient than previous technologies thanks to the various 3D printed parts and the innovative control logic implemented in the FADEC.

Responsibilities

- *Engine test remote monitoring.*
- *Validation of the control system integrated into the FADEC for software certification*
- *Development of the engine data analysis tool (ground run and flight data).*

Technical Environment
RmT: IBM Doors, IBM Synergy
IDE/Tools: Matlab/Simulink, Spyder (Python), NPSS

Electric Propulsion System (EPS) / AvioAero (On behalf of Politecnico di Bari) 06-2020 / 06-2021

Role: *Control System Research Fellow*
General Context
EPS is a research project that aims to create a hybrid and full electric propulsion system for a single-engine helicopter for urban mobility.

Responsibilities

- *Development of a mathematical torsion model of the rotor shaft for the VRT500 helicopter.*
- *Integration of the hybrid propulsion system with the physical model of the rotors.*
- *Development of the six-phase electric motor control logic (Control computer and Inverter side).*

Technical Environment

IDE/Tools: Matlab/Simulnk (Simscape), Spyder (Python), C/C++

Hackatons & Projects

- *Light Deck: DIY MIDI Lightroom controller (open-source project)*
  https://github.com/AndreaLunaro/LightDeck
- *University Makers' Fair, Polytechnic University of Bari: Prototype of a system for quality control of batteries produced in an industrial site using **Industry 4.0 technologies**.*
- *Br41n.io: Prototype of a system based on the **EEG helmet** and the Matlab/Simulink environment to control a virtual vehicle using **fNIRS** technology*

Education

- *Master's Degree in Automation Engineer, 110 Cum Laude/110, Politecnico di Bari 2017 – 2020*
  Master Thesis: "Design and control of a coaxial rotors helicopter"
- *Erasmus Project Mechatronics Engineering, Universidad de Malaga 2019*
- *Bachelor's Degree in Computer Science and Automation Engineering, Politecnico di Bari 2014 – 2017*
  Bachelor Thesis: "Optimization of the grasp for robotic hands"

Language Skills

- *Italian: Mother tongue.*
- *English: B2*
- *Spanish: B1*